From: Dougall James Miln Harvey
To: Scott Ellinger/R6/USEPA/US@EPA
Subject: RE: review of the KAFB Model
Date: 02/15/2013 12:12 PM
Attachments: plume_cross_section.pdf

Scott,

- You are correct on the dispersivity. If you convert the 9000 feet to 2750 meters, then the longitudinal dispersivity is approximately 16.4 m (53.7 feet).
- For boundaries, you could use General Head boundaries; these are not as constrained as Constant head boundaries, but you are still modeling in a large cone of depression and increasing the size of the model domain (in combination with GHB) would minimize artificial boundary effects on the predictison
- In Visual MODFLOW, the rows and columns are always NS and EW, so if you rotate the model domain, you end up with maps in Visual MODFLOW that are rotated (this is the same as in other GUIs like Vistas). If you want to see the results in true NS, you have to export them to GIS. For example, if you export the model grid to a DXF, you can open it in AutoCAD or ArcGIS and see the grid rotated (and the back ground maps in their true NS orientation)
- If you are only using Advection and Dispersion, then a higher value of dispersion should cause EDB to move faster toward the production wells; with no decay, the contaminant will get there, its just a matter of time; however, the impact of higher dispersion also depends on what concentration contour you are vieweing – with a higher dispersion, a high concentration contour (i.e. 1 mg/L) may appear to not move as far, and lower concentration contour (i.e. 1 ug/L) may appear to move farther (see Attached image); you might want to try changing the level of grid refinement to see if it is affecting numerical dispersion
- In 3D Explorer, you can zoom in on the image using the Shift button (it's the one on the bottom panel beside the Rotate button; just grab the Z slider and move it to the right)

Cheers,

Miln Harvey, Ph.D., P.Eng.
Senior Hydrogeologist
Schlumberger Water Services

Schlumberger Water Services
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From: Ellinger.Scott@epamail.epa.gov [mailto:Ellinger.Scott@epamail.epa.gov]
Sent: Friday, February 15, 2013 11:52 AM
To: Dougall James Miln Harvey
Cc: Smith.Melissa@epamail.epa.gov
Subject: RE: review of the KAFB Model

Thanks for your review. I have a few questions just to clarify a few things.

- On Xu and Eckstein, I thought the equation was valid for units in meters but not in feet. So the length (in feet) has to be converted to meters for the calculation, then back to feet again for use in the model (since my units are feet)
-
- What alternatives besides constant head boundaries placed around the domain would make sense? There is a large city-wide cone of depression centered on the eastern side of Albuquerque causing flow inward towards groups of production wells. Its been that way for decades. There aren't any physical flow boundaries in the area, so my thoughts were to use constant head boundaries to approximate the edges of the cone of depression. Any thoughts on a better way?
-
- I rotated the grid by constructing a separate model. On the new model, the grid lines are vertical and horizontal and the base map is tilted. Is there a way to rotate the grid but leave the base map oriented N-S on the screen.
-
- The advancing front of the plume begins to dissipate over time and distance and is especially noticeable around far down-gradient production wells, such that production wells are not impacted above the maximum contaminant level for ethylene dibromide (0.5 ppb). A greater value of dispersion causes less EDB to move into the production well field, as shown by the 0.5 ppb contour. I believe this is correct but I would appreciate your thoughts.
-
- In the 3D Explorer, is there a way to zoom in on a 3D image?
-
- Thanks so much for your help.

From: Dougall James Miln Harvey <MHarvey4@slb.com>
To: Scott Ellinger/R6/USEPA/US@EPA
Date: 02/11/2013 12:55 PM
Subject: RE: review of the KAFB Model

No worries. I am in the office all week.

Cheers,

Miln Harvey, Ph.D., P.Eng.
Senior Hydrogeologist

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From: Ellinger.Scott@epamail.epa.gov [mailto:Ellinger.Scott@epamail.epa.gov]
Sent: Monday, February 11, 2013 1:52 PM
To: Dougall James Miln Harvey
Subject: Re: review of the KAFB Model

Thanks. I need to look these over and see if I have questions.

From: Dougall James Miln Harvey <MHarvey4@slb.com>
To: Scott Ellinger/R6/USEPA/US@EPA
Date: 02/11/2013 07:26 AM
Subject: review of the KAFB Model

Scott,

I went through your MODFLOW/MT3D model of the KAFB contamination site in Albuquerque and reviewed the model from the perspective of the model set-up, simulation and results (for both the flow and transport aspects). I also went through some scenarios where I adjusted/refined the grid to see how it affected the results, and have provided some suggestions.

Please find a copy of the 2 page summary of what I found attached as a PDF.

Cheers,

Miln Harvey, Ph.D., P.Eng.
Senior Hydrogeologist

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From: Ellinger.Scott@epamail.epa.gov [mailto:Ellinger.Scott@epamail.epa.gov]
Sent: Wednesday, February 06, 2013 2:45 PM
To: Dougall James Miln Harvey
Subject: Re: I downloaded the Zip file

Okay, I tried it again.

From: Dougall James Miln Harvey <MHarvey4@slb.com>
To: Scott Ellinger/R6/USEPA/US@EPA
Date: 02/06/2013 01:12 PM
Subject: I downloaded the Zip file

Scott,

I received the Zip file containing the MODFLOW .VMF file. So, the Dropfile process works.

Now, could you send me all the files in the model folder. That is, could you zip up the entire folder and upload it to the Dropfile?

Cheers,

Miln Harvey, Ph.D., P.Eng.
Senior Hydrogeologist

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From: Ellinger.Scott@epamail.epa.gov [mailto:Ellinger.Scott@epamail.epa.gov]
Sent: Wednesday, February 06, 2013 12:58 PM
To: Dougall James Miln Harvey
Subject: RE: what time would be goo for a phone call this morning about the EMS

1pm is fine.

From: Dougall James Miln Harvey <MHarvey4@slb.com>
To: Scott Ellinger/R6/USEPA/US@EPA
Date: 02/06/2013 11:03 AM
Subject: RE: what time would be goo for a phone call this morning about the EMS

Scott,

Perfect. Just got done the meetings.

How about 1:00 EST? I will call the number below (214-665-8408).

Cheers,

Miln Harvey, Ph.D., P.Eng.
Senior Hydrogeologist

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From: Ellinger.Scott@epamail.epa.gov [mailto:Ellinger.Scott@epamail.epa.gov]
Sent: Wednesday, February 06, 2013 11:02 AM
To: Dougall James Miln Harvey
Subject: RE: what time would be goo for a phone call this morning about the EMS

How about an early-mid afternoon time?

From: Dougall James Miln Harvey <MHarvey4@slb.com>
To: Scott Ellinger/R6/USEPA/US@EPA
Date: 02/06/2013 09:46 AM
Subject: RE: what time would be goo for a phone call this morning about the EMS

Scott,

I have another meeting in about 20 minutes. I will call after that meeting, probably about 11:30 am.

Sorry, it got busy this morning.

Cheers,

Miln Harvey, Ph.D., P.Eng.
Senior Hydrogeologist

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From: Ellinger.Scott@epamail.epa.gov [mailto:Ellinger.Scott@epamail.epa.gov]
Sent: Wednesday, February 06, 2013 9:23 AM
To: Dougall James Miln Harvey
Subject: Re: what time would be goo for a phone call this morning about the EMS

How about 10am. My number is 214-665-8408.

From: Dougall James Miln Harvey <MHarvey4@slb.com>
To: Scott Ellinger/R6/USEPA/US@EPA
Date: 02/06/2013 07:34 AM
Subject: what time would be goo for a phone call this morning about the EMS

Scott,

What would be a good time to call this morning to discuss the EMS work?

I am in all day (and the rest of the week), and I have time to discuss the EMS.

Cheers,

Miln Harvey, Ph.D., P.Eng.
Senior Hydrogeologist

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[attachment "Notes_on_the_KAFB_MODFLOW_Model.pdf" deleted by
Scott Ellinger/R6/USEPA/US]

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